Algebra RH

Essential Question: What is the quadratic formula?

Do Now: Solve each quadratic equation below.

a. $x^2 = 16$ b. $x^2 = 12$ c. $x^2 + 9x = -14$ d. $x^2 + 2x = 1$

Up until this point, you have solved quadratic equations by finding the square root or by factoring a "factorable" quadratic equation in the form of $ax^2 + bx + c = 0$.

How do we solve $x^2 + 2x - 1 = 0$?

The quadratic formula can be used to solve any quadratic equation. However, it is most useful when solving quadratic equations that cannot be factored.

Quadratic Formula: $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ when $a \neq 0$ and $b^2 - 4ac \geq 0$

Using the quadratic formula, solve for x.

$x^2 + 9x = -14$

$x^2 + 2x = 1$

Solve each quadratic equation using the quadratic formula. Express final answers in simplest radical form.

1. $x^2 - 2x - 2 = 0$

2. $x^2 - 2 = 4x$

3. $2x^2 - 3x = 8$

4. $-x^2 - 2x + 5 = 0$

5. $-7x + x^2 = -6$

6. $9x^2 + 1 = 12x$